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The Rev. SAMUEL HAUGHTON, M. D., Fellow of Trinity College, Dublin, read the following Paper :—

ON THE EVAPORATION OF A WATER SURFACE AT ST. HELENA.

I HAVE already published in the "Proceedings" of the Academy the results of one year's Observation on the Difference of Rain-fall and Evaporation made at St. Helena by Lieutenant Haughton, R. A., in 1860-61. Through the kindness of this officer, and of Major Phillipps, commanding Royal Artillery at St. Helena, I am enabled to lay before the Academy on the present occasion two years' Observation on Evaporation and Rain-fall, made at the same place, and under better conditions.

The former observations were made in a glass cylinder, 9 inches high, and 4·85 inches wide, and gave only the excess of Evaporation above Rain-fall. The present Observations were made in two cylinders, one circumstanced like the last, and the other placed in a large tub of water, so as to have the water inside the cylinder always surrounded by water at nearly the same level, thus giving a better approximation to the true evaporation from a water surface surrounded by water.

At the same time, Major Phillipps recorded carefully the Rain-fall; and from a comparison of both sets of Observations, I have obtained the actual amount of Evaporation, corrected for Rain-fall, during the two years.

PART I.—LIEUTENANT HAUGHTON'S OBSERVATIONS ON THE DIFFERENCE OF EVAPORATION AND RAIN-FALL.

Observations on Evaporation resumed at 10<sup>h</sup> 45<sup>m</sup> A. M., on Sunday, 3rd August, 1862, with the old glass as before; and another, about the same size, immersed in water up to the zero point.

*A* is the depth of the water evaporated in one week in the new glass immersed in water.

*B*, ditto, in the former glass.

		Inches.				Inches.	
		<i>A.</i>	<i>B.</i>			<i>A.</i>	<i>B.</i>
AUGUST	10, 1862, . . .	1·00	1·30	OCTOBER	5, . . . . .	1·60	2·10
"	17, . . . . .	1·50	2·10	"	12, . . . . .	—	2·10
"	24, . . . . .	1·00	1·40	"	19, . . . . .	1·40	1·80
"	31, . . . . .	1·20	1·70	"	26, . . . . .	1·60	2·30
				NOVEMB.	2, . . . . .	1·60	2·30
SEPT.	7, . . . . .	1·50	2·00	"	9, . . . . .	1·35	2·00
"	14, . . . . .	1·80	2·40	"	16, . . . . .	—	—
"	21, . . . . .	1·50	2·00	"	23, † . . . . .	2·10	3·55
"	28,* . . . . .	1·10	1·60	"	30, . . . . .	1·15	1·90

\* The level of the water is always below zero at the end of the week.

† For two weeks.

		Inches. A.	Inches. B.			Inches. A.	Inches. B.
DECEMB.	7, <sup>1</sup>	1.55	2.10	SEPT.	6,	0.70	1.10
"	14, <sup>2</sup>	1.65	2.20	"	13,	0.20	1.40
"	21,	1.45	1.15	"	20,	1.20	1.50
"	28,	1.50	2.25	"	27,	0.80	1.20
JANUARY	4, 1863,	1.55	2.50	OCTOBER	4,	1.10	1.40
"	11,	1.65	2.70	"	11,	1.30	1.70
"	18,	1.10	1.75	"	18,	1.70	2.10
"	25,	1.30	1.95	"	25,	1.10	1.60
FEBRUARY	1,	1.55	2.50	NOVEMB.	1,	1.40	1.70
"	8,	1.40	2.30	"	8,	1.70	2.00
"	15,	0.90	1.90	"	15,	1.75	2.30
"	22,	1.40	2.45	"	22,	1.55	2.00
MARCH	1,	1.40	2.25	"	29,	—	—
"	8,	1.00	1.90	DECEMB.	6,	1.60	2.00
"	15,	—	—	"	13,	1.50	2.00
"	22, <sup>3</sup>	2.00	3.90	"	20,	1.75	2.35
"	29,	1.80	3.00	"	27,	—	—
APRIL	5,	1.75	2.70	JANUARY	3, 1864,	—	—
"	12,	0.90	1.70	"	10, <sup>7</sup>	3.86	5.63
"	19,	1.25	2.35	"	17,	1.37	2.16
"	26,	1.35	2.35	"	24,	1.65	2.35
MAY	3,	1.85	2.80	"	31,	1.50	2.30
"	10,	1.75	3.00	FEB.	7,	1.25	2.00
"	17,	1.70	2.90	"	14,	1.75	2.35
"	24,	1.65	2.55	"	21,	1.15	1.70
"	31,	1.25	2.00	"	28,	1.60	2.40
JUNE	7,	1.30	2.20	MARCH	6,	1.25	2.00
"	14,	1.05	1.75	"	13,	1.65	2.50
"	21, <sup>4</sup>	—	—	"	20,	1.35	2.15
"	28, <sup>5</sup>	0.20	0.40	"	27,	1.80	2.60
JULY	12, <sup>6</sup>	0.70	1.50	APRIL	3,	1.70	2.50
"	19,	1.00	1.50	"	10,	1.20	2.00
"	26,	0.40	0.70	"	17,	0.90	1.50
AUGUST	2,	1.20	1.50	"	24,	1.50	2.25
"	9,	1.35	1.80				
"	16,	1.30	1.65				
"	23,	1.10	1.50				
"	30,	1.00	1.65				

<sup>1</sup> Level of water in tub half an inch above that in the glass.<sup>2</sup> Water in tub again a little above that in glass.<sup>3</sup> For two weeks.<sup>4</sup> Not recorded, but very small.<sup>5</sup> The first instance of an excess of rain.<sup>6</sup> For two weeks, during which time a net covered both glasses. I had placed it there fearing the birds had been in the habit of drinking the water; but I removed the net to-day, because, on consideration, I thought it would have a tendency to conduct the drops of rain away from the glass. I have never seen any birds on the roof, and I think they could not reach the water in the glasses, no matter how thirsty they might be.<sup>7</sup> For three weeks.

				Inches.	Inches.					Inches.	Inches.
				A.	B.					A.	B.
MAY	1,	.	.	1.60	2.45	SEPT.	4,	.	.	1.10	1.65
"	8, <sup>1</sup>	.	.	1.45	2.20	"	11,	.	.	1.40	2.15
"	15, <sup>2 3</sup>	.	.	0.25	0.85	"	18,	.	.	0.80	1.30
"	22,	.	.	0.75	1.45	"	25,	.	.	1.40	2.05
"	29,	.	.	1.30	1.95						
JUNE	5,	.	.	—	—	OCTOBER	7,	.	.	1.30	1.90
"	12, <sup>4</sup>	.	.	2.10	3.25	"	9,	.	.	1.45	2.05
"	19,	.	.	0.55	1.20	"	16,	.	.	1.45	2.10
"	26,	.	.	0.90	1.45	"	23,	.	.	1.60	2.25
						"	30,	.	.	—	—
JULY	3,	.	.	0.80	1.35	NOV.	6, <sup>6</sup>	.	.	2.70	3.75
"	10,	.	.	1.10	1.70	"	13,	.	.	—	—
"	17,	.	.	1.25	1.85	"	20, <sup>7</sup>	.	.	2.50	3.60
"	24,	.	.	1.05	1.70	"	27,	.	.	1.70	2.36
"	31,	.	.	—	—						
AUGUST	7, <sup>5</sup>	.	.	1.10	2.20	DEC.	4,	.	.	1.00	1.90
"	14,	.	.	0.85	1.35	"	11,	.	.	1.02	1.63
"	21,	.	.	1.25	1.75	"	18,	.	.	1.60	2.50
"	28,	.	.	1.05	1.60	"	25,	.	.	1.50	2.25

<sup>1</sup> Taken 3 hours late.<sup>3</sup> Cleaned out the glasses.<sup>6</sup> For two weeks.<sup>2</sup> Great mountain torrent at Sandy Bay on the 11th.<sup>4</sup> For two weeks.<sup>7</sup> For two weeks.<sup>5</sup> For two weeks.

PART II.—MAJOR PHILLIPPS'S OBSERVATIONS ON THE RAIN-FALL AT  
ST. HELENA.

*Height above the Sea, 700 Feet.*

LADDER HILL, ST. HELENA.													
Year.	Date.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
1861.	1st, . . .	No Observations taken.	Ditto.	No Observations taken.	0·02	..	No Observations taken.	..	0·11	..	0·01	0·02	..
	2nd, . . .				..	..		0·08	..	..	0·01	0·01	
	3rd, . . .				..	0·33		0·11	0·05	..	0·01	0·01	..
	4th, . . .				..	0·04		..	0·04	..	..	0·01	..
	5th, . . .				..	..		0·02	0·02	..	..	0·02	..
	6th, . . .				0·45	..		0·06	0·30	0·01	..	0·01	..
	7th, . . .				0·19	..		0·47	0·00	..	..	0·03	0·01
	8th, . . .				0·16	..		0·11	..	..	..	0·04	0·02
	9th, . . .				0·08	0·02		0·16	0·01	0·01	0·01	..	0·19
	10th, . . .				0·07	0·04		0·13	0·27	..	0·04	..	0·03
	11th, . . .				..	0·04		0·02	0·01	0·05	0·01	..	0·01
	12th, . . .				0·02	0·61		0·02	0·06	..	..	..	0·03
	13th, . . .				0·13	0·12		..	0·05	0·06	..	..	0·03
	14th, . . .				0·07	..		..	0·54	0·01	..	..	..
	15th, . . .				..	..		..	0·28	..	..	0·05	0·08
	16th, . . .				..	..		..	0·05	..	..	..	0·01
	17th, . . .				0·30	..		..	0·01	0·02	..	..	0·01
	18th, . . .				0·14	..		..	0·03	0·06	0·01	0·02	..
	19th, . . .				0·01	0·03		..	..	0·01	..	0·01	..
	20th, . . .				..	0·05		0·10	..	0·05	0·01	0·03	..
	21st, . . .				0·07	0·05		0·01	..	0·10	0·02	0·02	..
	22nd, . . .				0·05	..		0·07	..	0·08	0·02	0·01	..
	23rd, . . .				0·05	..		0·02	..	0·08	0·01	0·01	..
	24th, . . .				0·20	0·08		0·11	0·17	0·03	0·05	0·02	..
	25th, . . .				0·18	..		0·35	0·02	0·01	..	..	..
	26th, . . .				0·02	..		0·04	0·01	..	..	..	0·01
	27th, . . .				..	0·03		0·20	..	..	..	..	..
	28th, . . .				0·06	..		0·15	..	..	..	0·02	0·08
	29th, . . .				..	..		0·04	..	0·06	..	0·01	0·03
	30th, . . .				..	..		0·06	..	0·01	0·01	..	0·02
	31st, . . .				..	..		0·08	..	..	0·04	..	0·03

The Rain Gauge used was a zinc funnel, five inches diameter, made by Messrs. Negretti and Zambra, placed in a bottle buried to the neck in earth. Rain-fall was measured in a glass having one inch of rain divided into 100 parts. Observations were taken at 9 A. M. each day.

TABLE showing the Rain-Fall at Ladder Hill, St. Helena.  
Height above the Sea, 700 Feet.

LADDER HILL, ST. HELENA.													
Year.	Date.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
1862.	1st, . . .	..	·01	..	..	·03	·01	·03	·18	·01	..	..	..
	2nd, . . .	..	·04	·02	..	·01	..	..	·25	..	·02	..	..
	3rd, . . .	..	·20	·11	..	..	..	·09	·09	..	·02	·02	..
	4th, . . .	..	·03	·05	..	..	..	·16	·02	..	..	..	·01
	5th, . . .	·05	·14	·01	..	..	·02	·09	..	..	..	..	·02
	6th, . . .	·14	·03	..	..	..	..	·14	..	·01	·03	..	·07
	7th, . . .	·02	·01	·30	..	..	..	·13	·24	..	·05	..	·07
	8th, . . .	·03	..	·20	·06	..	..	·03	·07	..	·12	..	·02
	9th, . . .	·05	..	·02	·01	..	..	..	·10	..	·01	..	·01
	10th, . . .	·04	..	·01	..	..	..	·23	·05	..	·01	..	..
	11th, . . .	·04	·01	..	·03	..	·05	·37	·02	..	·10	..	..
	12th, . . .	..	..	·01	·13	..	·07	·04	..	..	·02	·05	..
	13th, . . .	..	·05	·05	·09	..	..	·03	..	..	..	·01	..
	14th, . . .	..	·22	·02	·01	..	·23	..	..	·06	·02	..	..
	15th, . . .	·04	·07	·01	·03	..	·09	·47	..	·03	·17	·13	..
	16th, . . .	·03	·01	·02	·04	..	·33	·27	·04	·01	·06	·07	..
	17th, . . .	..	·01	·13	·03	..	·71	·10	·09	..	·05	·06	..
	18th, . . .	·02	..	·17	·32	·10	·27	·02	·05	·05	·07	·06	..
	19th, . . .	·01	..	·20	·31	·21	·11	·07	·01	·06	·14	·05	..
	20th, . . .	·06	..	·02	·36	·16	·10	·23	..	·04	·01	·02	..
	21st, . . .	·05	·01	..	·01	..	·13	·12	..	·07	..	·03	..
	22nd, . . .	..	..	..	..	·02	·10	·07	·01	·04	..	·01	..
	23rd, . . .	·05	·02	..	..	·11	·01	·18	..	·03	..	..	·07
	24th, . . .	·05	·04	..	·03	·05	·21	·03	..	·01	..	·02	·08
	25th, . . .	·16	·06	..	·03	..	·12	..	..	·01	..	·02	·05
	26th, . . .	·01	·03	..	·04	·01	·10	..	..	·10	..	·02	·02
	27th, . . .	·17	·04	..	..	..	·55	..	·03	·01	..	·11	·01
	28th, . . .	·69	..	..	..	·05	·03	·05	·01	..	..	·15	·01
	29th, . . .	·72	..	..	..	·10	·03	·04	·03	·06	..	·02	·08
	30th, . . .	·16	..	..	·03	·03	·06	·05	·03	·01	..	..	·01
	31st, . . .	·03	..	·03	..	·06	..	·21	·06	..	..	..	·12

The Rain Gauge used was a zinc funnel, of five inches diameter, made by Messrs. Negretti and Zambra, placed in a bottle buried to the neck in earth. Rain-fall was measured in a glass having one inch of rain divided into 100 parts. Observations were taken at 9 A. M. each day.

## SUMMARY.

Month.	Days on which Rain fell.	Total Rain-fall in inches.
January, . . . . .	22	2·62
February, . . . . .	19	1·08
March, . . . . .	18	1·38
April, . . . . .	17	1·61
May, . . . . .	13	0·99
June, . . . . .	21	3·48
July, . . . . .	25	3·25
August, . . . . .	19	1·43
September, . . . . .	17	0·61
October, . . . . .	16	0·90
November, . . . . .	17	0·85
December, . . . . .	15	0·65
Total during 1862, . .	<b>219</b>	<b>18·85</b>

## LADDER HILL, ST. HELENA.

LADDER HILL, ST. HELENA.			
Month.	Date.	Rain.	Remarks.
JANUARY, 1863.	1	0·02	Recorded by Major PHILLIPS, R. A.
	2	..	
	3	..	
	4	0·05	
	5	..	
	6	0·02	
	7	..	
	8	0·01	
	9	..	
	10	..	
	11	0·04	
	12	0·03	
	13	0·02	
	14	..	
	15	0·07	
	16	0·09	
	17	0·03	
	18	0·04	
	19	0·01	
	20	..	
	21	0·06	
	22	0·01	
	23	0·03	
	24	0·04	
	25	0·01	
	26	..	
	27	..	
	28	..	
	29	0·05	
	30	0·04	
	31	..	
Total Rain-fall, . . 0·67 of a inch.			
Month.	Date.	Rain.	Remarks.
FEBRUARY, 1863.	1	0·11	Recorded by Major PHILLIPS, R. A.
	2	0·04	
	3	..	
	4	..	
	5	0·10	
	6	0·03	
	7	0·04	
	8	0·06	
	9	0·08	
	10	0·46	
	11	0·05	
	12	0·08	
	13	0·29	
	14	0·12	
	15	0·16	
	16	0·09	
	17	0·15	
	18	0·15	
	19	..	
	20	..	
	21	0·01	
	22	..	
	23	..	
	24	0·12	
	25	0·15	
	26	0·24	
	27	0·02	
	28	0·01	
Total Rain-fall, . . . 2·56 inches.			



## LADDER-HILL, ST. HELENA.

LADDER-HILL, ST. HELENA.			
Month.	Date.	Rain.	Remarks.
MARCH, 1863.	1	0·15	Recorded by Lieut. F. T. LLOYD, R. A.
	2	0·17	
	3	0·06	
	4	0·01	
	5	0·04	
	6	0·05	
	7	0·34	
	8	0·05	
	9	0·09	
	10	0·51	
	11	0·40	
	12	0·49	
	13	0·29	
	14	0·10	
	15	0·02	
	16	0·01	
	17	..	
	18	0·10	
	19	0·01	
	20	0·13	
	21	0·03	
	22	..	
	23	..	
	24	0·04	
	25	..	
	26	0·01	
	27	..	
	28	0·09	
	29	0·04	
	30	..	
	31	0·01	
Total Rain-fall, . . . 3·24 inches.			
Month.	Date.	Rain.	Remarks.
APRIL, 1863.	1	..	Recorded by Ensign G. H. EVANS, St. Helena Regiment.
	2	0·01	
	3	..	
	4	..	
	5	0·03	
	6	0·25	
	7	0·21	
	8	0·19	
	9	0·01	
	10	0·02	
	11	0·15	
	12	..	
	13	..	
	14	..	
	15	..	
	16	0·11	
	17	0·59	
	18	0·02	
	19	..	
	20	0·03	
21	0·05		
22	0·03		
23	0·02		
24	..		
25	0·04		
26	..		
27	0·03		
28	..		
29	..		
30	..		
Total Rain-fall, . . . 1·79 inches.			

## LADDER HILL, ST. HELENA.

LADDER HILL, ST. HELENA.							
Month.	Date.	Rain.	Remarks.	Month.	Date.	Rain.	Remarks.
MAY, 1863.	1	..	Recorded by Ensign G. H. EVANS, St. H. Regt.	JUNE, 1863.	1	0·07	Recorded by Lieutenant JOHN HAUGHTON, R. A.
	2	..			2	0·01	
	3	..			3	0·01	
	4	..			4	..	
	5	..			5	..	
	6	..			6	..	
	7	..			7	..	
	8	..			8	0·05	
	9	..			9	0·05	
	10	..			10	0·04	
	11	0 01			11	..	
	12	..			12	..	
	13	..			13	..	
	14	..			14	..	
	15	..			15	..	
	16	..			16	0·66	
	17	..			17	0·12	
	18	..			18	0·14	
	19	..			19	0·25	
	20	..			20	0·30	
	21	..			21	0·69	
	22	..			22	..	
	23	..			23	0 02	
	24	..			24	0·04	
	25	..			25	..	
	26	0·04			26	0·01	
	27	..			27	1·02	
	28	0·01			28	0·20	
	29	..			29	..	
	30	0·25			30	0·15	
	31	0·08					
Total Rain-fall, . . 0·39 of an inch.				Total Rain-fall, . . . 3·83 inches.			

LADDER HILL, ST. HELENA.				
Month.	Date.	Rain.	Remarks.	Observations.
JULY, 1863.	1	0·32	Recorded by Major PHILLIPS, R. A.	RAIN GAUGE.—Negretti and Zambra's zinc funnel, five inches in diameter, placed in a bottle buried in the earth. The rain was measured in a glass, having one inch of rain divided into 100 parts.
	2	..		
	3	0·16		
	4	0·09		
	5	0·16		
	6	0·22		
	7	0·10		
	8	0·32		
	9	0·41		
	10	0·16		
	11	0·04		
	12	..		
	13	0·03		
	14	0·01		
	15	0·05		
	16	No observation.		
	17	0·10		
	18	0·12		
	19	0·17		
	20	0·02		
	21	0·15		
	22	..		
	23	0·19		
	24	0·09		
	25	0·32		
	26	0·09		
	27	0·08		
	28	0·12		
	29	No observation.		
	30	..		
	31	..		
Total Rain-fall, . . . 3·52 inches.				

## LADDER HILL, ST. HELENA.

LADDER HILL, ST. HELENA.							
Month.	Date.	Rain.	Remarks.	Month.	Date.	Rain.	Remarks.
AUGUST, 1863.	1	..	Recorded by Major PHILLIPS, R. A.	SEPTEMBER, 1863.	1	0·12	Recorded by Major PHILLIPS, R. A.
	2	..			2	0·16	
	3	..			3	0 02	
	4	..			4	..	
	5	..			5	0·13	
	6	0·01			6	0·04	
	7	..			7	..	
	8	..			8	..	
	9	..			9	0·08	
	10	0·01			10	0·02	
	11	0·03			11	0·04	
	12	0·04			12	..	
	13	0·03			13	..	
	14	0·04			14	..	
	15	0·01			15	..	
	16	..			16	..	
	17	0·21			17	..	
	18	0·03			18	..	
	19	0·03			19	0·07	
	20	0·19			20	0·03	
	21	0·03			21	..	
	22	0·04			22	0·04	
	23	..			23	0·13	
	24	..			24	0·20	
	25	0·01			25	0·02	
	26	..			26	0·03	
	27	..			27	0·01	
	28	..			28	0·02	
	29	0·03			29	0·11	
	30	0·07			30	0·07	
	31	0·03					
Total Rain-fall, 0·84 of an inch.				Total Rain-fall, . . . 1·35 inches.			

## LADDER-HILL, ST. HELENA.

LADDER-HILL, ST. HELENA.							
Month.	Date.	Rain.	Remarks.	Month.	Date.	Rain.	Remarks.
OCTOBER, 1863.	1	0·14	Recorded by Major PHILLIPS, R. A.	NOVEMBER, 1863.	1	0·01	Recorded by Major PHILLIPS, R. A.
	2	0·10			2	..	
	3	0·07			3	0·01	
	4	0·06			4	..	
	5	0·01			5	..	
	6	0·11			6	..	
	7	0 07			7	..	
	8	0 01			8	..	
	9	..			9	..	
	10	0·05			10	..	
	11	0·01			11	0·02	
	12	..			12	..	
	13	..			13	..	
	14	0·03			14	..	
	15	..			15	..	
	16	0·02			16	..	
	17	0·03			17	0·02	
	18	0·10			18	..	
	19	0·07			19	0·01	
	20	0·14			20	..	
	21	0·03			21	..	
	22	0·08			22	0·02	
	23	0·12			23	0·05	
	24	..			24	0·02	
	25	..			25	0·07	
	26	..			26	0·03	
	27	..			27	0·01	
	28	0·07			28	0·04	
	29	0·01			29	0·01	
	30	0·05			30	..	
	31	0·06					
Total Rain-fall, . . . 1·44 inches.				Total Rain-fall, . . 0·32 of an inch.			

## LADDER-HILL, ST. HELENA.

LADDER-HILL, ST. HELENA.			
Month.	Date.	Rain.	Remarks.
DECEMBER, 1863.	1	0·03	Recorded by Major PHILLIPS, R. A.
	2	0·09	
	3	..	
	4	..	
	5	0·02	
	6	..	
	7	0·04	
	8	0·01	
	9	..	
	10	..	
	11	0·04	
	12	0·01	
	13	0·02	
	14	..	
	15	..	
	16	0·04	
	17	..	
	18	..	
	19	..	
	20	..	
	21	..	
	22	..	
	23	..	
	24	..	
	25	..	
	26	0·06	
	27	0·04	
	28	0·02	
	29	0·04	
	30	0·10	
	31	..	
Total Rain-fall . . 0·56 of an inch.			
Month.	Date.	Rain.	Remarks.
JANUARY, 1864.	1	0·02	Recorded by Major PHILLIPS, R. A.
	2	0·04	
	3	0·06	
	4	0·03	
	5	0·02	
	6	0·02	
	7	0·01	
	8	0·02	
	9	..	
	10	0·01	
	11	0·02	
	12	..	
	13	0·05	
	14	0·11	
	15	0·05	
	16	..	
	17	0·05	
	18	0·03	
	19	..	
	20	0·02	
	21	..	
	22	..	
	23	..	
	24	..	
	25	..	
	26	0·02	
	27	0·01	
	28	0·09	
	29	0·06	
	30	0·09	
	31	0·06	
Total Rain-fall, . . 0·89 of an inch.			

## LADDER HILL, ST. HELENA.

LADDER HILL, ST. HELENA.							
Month.	Date.	Rain.	Remarks.	Month.	Date.	Rain.	Remarks.
FEBRUARY, 1864.	1	0·02	Recorded by Major PHILLIPS, R. A.	MARCH, 1864.	1	0·12	Recorded by Major PHILLIPS, R. A.
	2	0·01			2	0·18	
	3	0·01			3	..	
	4	0·13			4	0·05	
	5	0·18			5	0·18	
	6	0·03			6	0·03	
	7	..			7	0·09	
	8	0·01			8	0·03	
	9	..			9	0·06	
	10	0·02			10	..	
	11	0·01			11	..	
	12	0·03			12	..	
	13	0·06			13	0·02	
	14	0·02			14	..	
	15	0·03			15	..	
	16	0·01			16	..	
	17	0·03			17	0·02	
	18	0·12			18	0·07	
	19	0·04			19	0·17	
	20	0·14			20	0·01	
	21	..			21	0·04	
	22	..			22	..	
	23	0·04			23	..	
	24	0·08			24	..	
	25	0·17			25	..	
	26	0·04			26	..	
	27	0·01			27	..	
	28	0·08			28	..	
	29	0·10			29	0·09	
		30	0·02				
		31	0·04				
Total Rain-fall, . . . 1 42 inches.				Total Rain-fall, . . 1·22 inches.			

## LADDER HILL, ST. HELENA.

LADDER HILL, ST. HELENA.							
Month.	Date.	Rain.	Remarks.	Month.	Date.	Rain.	Remarks.
APRIL, 1864.	1	0·02	Recorded by Major PHILLIPS, R. A.	MAY, 1864.	1	..	Recorded by Major PHILLIPS, R. A.
	2	0·08			2	..	
	3	0·03			3	..	
	4	..			4	..	
	5	..			5	..	
	6	0·03			6	..	
	7	0·17			7	0·12	
	8	0·10			8	0·26	
	9	0·23			9	0·29	
	10	0·18			10	0·17	
	11	0·22			11	0·21	
	12	0·14			12	..	
	13	0·09			13	..	
	14	0·04			14	0·38	
	15	0·13			15	0·17	
	16	0·06			16	..	
	17	0·08			17	..	
	18	0·04			18	0·16	
	19	0·03			19	0·22	
	20	0·03			20	0·37	
	21	..			21	0·11	
	22	..			22	..	
	23	..			23	..	
	24	0·02			24	..	
	25	..			25	..	
	26	..			26	..	
	27	0·02			27	..	
	28	..			28	..	
	29	0·01			29	..	
	30	..			30	0·03	
			31	..			
Total Rain-fall, . . 1·77 inches.				Total Rain-fall, . . 2·39 inches.			



## LADDER HILL, ST. HELENA.

LADDER HILL, ST. HELENA.							
Month.	Date.	Rain.	Remarks.	Month.	Date.	Rain.	Remarks.
JUNE, 1864.	1	0·08	Recorded by Major PHILLIPS, R. A.	JULY, 1864.	1	..	Recorded by Major PHILLIPS, R. A.
	2	0·06			2	..	
	3	0·32			3	..	
	4	0·20			4	..	
	5	0·03			5	0·10	
	6	..			6	..	
	7	..			7	..	
	8	..			8	0·05	
	9	..			9	..	
	10	..			10	..	
	11	..			11	..	
	12	..			12	0·02	
	13	..			13	..	
	14	0·31			14	..	
	15	0·37			15	..	
	16	0·14			16	0·14	
	17	0·19			17	0·06	
	18	0·16			18	..	
	19	0·18			19	0·09	
	20	0·14			20	0·08	
	21	..			21	0·03	
	22	..			22	0·09	
	23	0·03			23	0·04	
	24	0·15			24	0·05	
	25	0·09			25	0·11	
	26	..			26	0·30	
	27	0·15			27	0·29	
	28	0·26			28	0·11	
	29	0·04			29	0·02	
	30	..			30	..	
		31	..				
Total Rain-fall, . . 2·90 inches.				Total Rain-fall, . . 1·58 inches.			

## LADDER HILL, ST. HELENA.

LADDER HILL, ST. HELENA.			
Month.	Date.	Rain.	Remarks.
AUGUST, 1864.	1	0·06	Recorded by Major PHILLIPS, R. A.
	2	0·03	
	3	0·02	
	4	0·05	
	5	0·44	
	6	0·42	
	7	0·15	
	8	0·27	
	9	..	
	10	.	
	11	..	
	12	..	
	13	0·06	
	14	..	
	15	..	
	16	0·03	
	17	0·12	
	18	..	
	19	..	
	20	..	
	21	..	
	22	0·12	
	23	0·06	
	24	0·04	
	25	..	
	26	0·03	
	27	..	
	28	..	
	29	..	
	30	0·02	
	31	..	
Total Rain-fall, . . 1·92 inches.			

Month.	Date.	Rain.	Remarks.
SEPTEMBER, 1864.	1	..	Recorded by Major PHILLIPS, R. A.
	2	..	
	3	0·05	
	4	..	
	5	0·02	
	6	..	
	7	0·04	
	8	0·08	
	9	0·10	
	10	0·04	
	11	0·05	
	12	0·15	
	13	0·21	
	14	0·18	
	15	0·07	
	16	0·08	
	17	0·04	
	18	..	
	19	..	
	20	0·02	
	21	..	
	22	..	
	23	0·03	
	24	..	
	25	0·06	
	26	0·05	
	27	..	
	28	..	
	29	..	
	30	..	
	Total Rain-fall, . . 1·27 inches.		

## LADDER HILL, ST. HELENA.

LADDER HILL, ST. HELENA.							
Month.	Date.	Rain.	Remarks.	Month.	Date.	Rain.	Remarks.
OCTOBER, 1864.	1	..	Recorded by Major PHILLIPS, R. A.	NOVEMBER, 1864.	1	..	Recorded by Major PHILLIPS, R. A.
	2	..			2	..	
	3	..			3	..	
	4	..			4	..	
	5	..			5	..	
	6	..			6	0·08	
	7	..			7	..	
	8	..			8	..	
	9	..			9	..	
	10	..			10	0·02	
	11	..			11	0·03	
	12	..			12	0·04	
	13	..			13	..	
	14	0·06			14	..	
	15	0·05			15	..	
	16	0·03			16	..	
	17	..			17	..	
	18	..			18	..	
	19	0·05			19	0·02	
	20	0·02			20	0·02	
	21	0·04			21	..	
	22	0·02			22	..	
	23	0·02			23	..	
	24	0·03			24	0·02	
	25	..			25	..	
	26	..			26	..	
	27	..			27	..	
	28	..			28	..	
	29	0·02			29	0·05	
	30	..			30	0·06	
	31	..					
Total Rain-fall, . . 0·34 of an inch.				Total Rain-fall, . . 0·34 of an inch.			



In the following Table I have collected together, in the form of an abstract, the preceding Observations on Evaporation and Rain-fall, week by week.

The column marked  $E - R$  denotes Evaporation minus Rain-fall for each week, observed in the cylinder surrounded by water; the column  $R$  denotes the weekly Rain-fall; and the column  $E$  denotes the Evaporation, deduced from the preceding.

	Date.	$E - R$ .	$R$ .	$E$ .		Date.	$E - R$ .	$R$ .	
1862.	AUG. 10	1.00	0.48	1.48	1863.	APRIL 5	1.75	0.05	1.80
	" 17	1.50	0.15	1.65		" 12	0.90	0.83	1.73
	" 24	1.00	0.07	1.07		" 19	1.25	0.72	1.97
	" 31	1.20	0.21	1.41		" 26	1.35	0.17	1.52
	SEPT. 7	1.50	0.02	1.52		MAY 3	1.85	0.03	1.88
	" 14	1.80	0.06	1.86		" 10	1.75	0.00	1.75
	" 21	1.50	0.26	1.76		" 17	1.70	0.01	1.71
	" 28	1.10	0.20	1.30		" 24	1.65	0.00	1.65
	OCT. 5	1.60	0.11	1.71		" 31	1.25	0.38	1.63
	" 12	1.60	0.34	1.94		JUNE 7	1.30	0.09	1.39
	" 19	1.40	0.51	1.91		" 14	1.05	0.14	1.19
	" 26	1.60	0.01	1.61		" 21	0.00	2.16	2.16
	NOV. 2	1.60	0.00	1.60		" 28	0.20	1.29	1.09
	" 9	1.35	0.02	1.37		JULY 5	0.70	0.88	[1.23]
	" 16	2.10	0.26	[1.31]*		" 12		1.25	[1.60]
	" 23		0.23	[1.28]		" 19		0.48	1.48
	DEC. 7	1.55	0.17	1.72		" 26	0.40	0.86	1.26
	" 14	1.60	0.03	1.63		AUG. 2	1.20	0.20	1.40
	" 21	1.45	0.00	1.45		" 9	1.35	0.01	1.36
	" 28	1.55	0.24	1.74		" 16	1.30	0.16	1.46
	JAN. 4	1.55	0.08	1.63		" 23	1.10	0.53	1.63
	" 11	1.65	0.07	1.72		" 30	1.00	0.11	1.11
	" 18	1.10	0.28	1.38		SEPT. 6	0.70	0.50	1.20
	" 25	1.30	0.16	1.46		" 13	1.20	0.14	1.34
	FEB. 1	1.55	0.20	1.75		" 20	1.20	0.10	1.30
	" 8	1.40	0.27	1.67		" 27	0.80	0.43	1.23
1863.	" 15	0.90	1.24	2.14		OCT. 4	1.10	0.57	1.67
	" 22	1.40	0.40	1.80		" 11	1.30	0.26	1.56
	MAR. 1	1.40	0.69	2.09		" 18	1.70	0.18	1.88
	" 8	1.00	0.72	1.72		" 25	1.10	0.44	1.54
	" 15	2.00	1.90	[2.90]		NOV. 1	1.40	0.20	1.60
	" 22		0.28	[1.28]		" 8	1.70	0.01	1.71
	" 29		0.18	1.98		" 15	1.75	0.02	1.77

\* When two or three weeks are recorded together, the means are used, and such results are entered between brackets [     ].

	Date.	E - R.	R.	E.		Date.	E - R.	R.	E.
1863.	Nov. 22	1.55	0.05	1.60*	1864.	JUNE 19	0.55	1.35	1.90
	" 29	—	0.23	[1.67]		" 26	0.90	0.41	1.31
	DEC. 6	1.60	0.14	1.74		JULY 3	0.80	0.45	1.25
	" 13	1.50	0.12	1.62		" 10	1.10	0.15	1.25
	" 20	1.75	0.04	1.79		" 17	1.25	0.22	1.47
	" 27	3.86	0.10	[1.39]		" 24	1.05	0.38	1.43
	JAN. 3		0.28	[1.56]		" 31	1.10	0.83	[1.38]
	" 10		0.11	[1.40]		AUG. 7		1.17	[1.72]
	" 17	1.37	0.28	1.65		" 14	0.85	0.33	1.18
	" 24	1.65	0.05	1.83		" 21	1.25	0.15	1.40
	" 31	1.50	0.37	1.63		" 28	1.05	0.25	1.30
	FEB. 7	1.25	0.38	1.90		SEPT. 4	1.10	0.07	1.17
	" 14	1.75	0.15	1.52		" 11	1.40	0.33	1.73
	" 21	1.15	0.37	2.02		" 18	0.80	0.73	1.53
" 28	1.60	0.42	1.91	" 25	1.40	0.11	1.51		
1864.	MAR. 6	1.25	0.66	1.85	OCT. 2	1.30	0.05	1.35	
	" 13	1.65	0.20	1.62	" 9	1.45	0.00	1.45	
	" 20	1.35	0.27	1.84	" 16	1.45	0.14	1.59	
	" 27	1.80	0.04	1.98	" 23	1.60	0.15	1.75	
	APRIL 3	1.70	0.28	1.91	" 30	2.70	0.05	[1.40]	
	" 10	1.20	0.71	1.66	NOV. 6		0.68	[1.43]	
	" 17	0.90	0.76	1.62	" 13	2.50	0.09	[1.34]	
	" 24	1.50	0.12	1.63	" 20		0.04	[1.29]	
	MAY 1	1.60	0.03	1.83	" 27	1.70	0.02	1.72	
	" 8	1.45	0.38	1.37	DEC. 4	1.00	0.30	1.30	
	" 15	0.25	1.12	1.61	" 11	1.02	0.49	1.51	
	" 22	0.75	0.86	1.30	" 18	1.60	0.07	1.67	
	" 29	1.30	0.00	[1.79]	" 25	1.50	0.02	1.52	
	JUNE 5	2.10	0.00	[1.05]					
" 12									

If we combine the preceding results into periods of four weeks, commencing at winter solstice (summer in Southern hemisphere), we find the following Table, containing the thirteen lunar months of each year:—

\* The entries in brackets [ ] are deduced from those before and after them, or are means, when several weeks are recorded together.

TABLE showing Evaporation for Periods of Four Weeks.

Lunar Month.	Commencing December 22, 1862.	Commencing December 21, 1863.	Commencing December 20, 1864.	Mean.
	Inches.	Inches.	Inches.	Inches.
1	..	6·47	6·00	6·23
2	..	7·02	7·06	7·04
3	..	8·51	7·30	7·90
4	..	6·79	7·35	7·07
5	..	7·12	6·74	6·93
6	..	6·38	6·07	6·22
7	..	5·67	5·51	5·59
8	..	5·74	5·53	5·63
9	..	5·56	5·60	5·58
10	6·55	5·07	5·94	5·85
11	6·86	6·65	6·14	6·55
12	5·89	6·68	5·46	6·01
13	6·13	6·82	6·20	6·38
Total, . .		<b>84·48</b>	<b>80·90</b>	<b>82·98</b>

The last column of this Table is shown graphically in Plate I., and proves that the maximum and minimum of Evaporation follow the solstice by intervals different in summer and winter; the maximum occurring three months after, or nearly at the time of the equinox, and the minimum occurring one month and a half after its own solstice. This result differs from that formerly found for Dublin, where the maximum and minimum of Evaporation coincide very nearly with the times of the solstices themselves.

This difference is produced by causes not difficult of detection.

MEAN EVAPORATION AT ST. HELENA IN 1862, 3, 4.